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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,465	06/19/2006	Li-Ying Yang	FDN-2794/CIP	1913

7590 03/25/2009
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EXAMINER

AHMED, SHEEBA

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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03/25/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/565,465	Applicant(s) YANG, LI-YING	
	Examiner SHEEBA AHMED	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/2/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 2, 2009 has been entered.

Response to Amendment

2. Amendments to claim 1 have been entered in the above-identified application. Claims 3 and 4 are cancelled. New claim 6 has been entered. **Claims 1, 2, 5, and 6 are pending.**

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

New claim 6 recites a thermoplastic polyolefin (TPO) roofing membrane comprising a reinforcement scrim sandwiched between cap and base layers wherein

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both of said cap and base layers are produced by a process comprising combining, by weight: (a) 50-90% of metallocene-catalyzed polyethylene; (b) an ethylene-propylene rubber (EPR); and (c) a crystallinity enhancing polymer comprising (i) high density polyethylene (HDPE) and (ii) polypropylene (PP) having a crystallinity of 50 wt.%.

Is the claimed 50-90 wt. % of the polyethylene based on the total weight of all components or only the polymeric components? Furthermore, it is unclear what is meant by polypropylene (PP) having a crystallinity of 50 wt.%? Is 50% of the polypropylene crystalline or is there 50 wt. % of polypropylene in component (c)? What exactly is meant by crystallinity in this instance - is it the isotacticity?

Appropriate correction or clarification is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venkataswamy et al. (US 6,544,909 B1) in view of Davis et al. (US 5,256,228 A).

Venkataswamy et al. disclose a single ply reinforced roofing membrane having advantageous tensile and seam strength comprising a reinforcement scrim sandwiched between polyolefin cap and base layers (See Abstract). Heat-sealable, reinforced

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polyolefin-based single ply roofing membranes are composed of base (bottom) and cap (top) polyolefin-based sheets (layers) with a fiber reinforcement scrim (middle) sandwiched between the other two layers. The scrim is the strongest layer in the composite. In order to fully realize the reinforcement properties of the scrim in such a laminate composite, however, it is necessary that excellent adhesion exist between the polyolefin sheets and the scrim. Unfortunately, due to the inherent incompatibility of scrim materials and polyolefins, only relatively poor interfacial adhesion exists between the scrim and polyolefin sheets. As a result, the roofing membrane is observed to have only low tensile and seam strength properties (Column 1, lines 15-25). It is therefore important to modify the surface characteristics of one or both of the polyolefin-based layers in order to improve the interfacial bonding between polyolefin and scrim thus proving roofing membranes having enhanced membrane tensile and seam strengths. The thickness of the membrane preferably ranges from 5 to 200 mils, more preferably from 35-90 mils (Column 1, lines 30-62). Suitable polyolefins are polymers such as polyethylene, polypropylene, terpolymers of ethylene, propylene and diene monomers, ethylene-propylene copolymers, ethylene-butene copolymers, ethylene-hexene copolymers, ethylene-octene copolymers, propylene-C.sub.4-8 alpha-olefin copolymers, metallocene polyolefins and the like (Column 2, lines 11-16).

Venkataswamy et al. do not state that their roofing membrane comprises a HDPE, as a crystallinity enhancing polymer.

Davis et al. disclose a heat seamable sheet material for roofing prepared from an uncured polymeric composition of matter which comprises 100 parts by weight of a

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polymer blend comprising from about **50 to 90 parts by weight of polyolefins** having up to about 2 percent by weight crystallinity, which polyolefins are prepared from monomers having at least 2 carbon atoms, and mixtures thereof and from about **10 to 50 parts by weight of a highly crystalline thermoplasticity promoter** selected from the group consisting of polymeric olefins prepared from monomers consisting of at least two carbon atoms, per 100 parts of the polymer blend. Examples of highly crystalline thermoplasticity promoters such as high density polyethylene (HDPE), low density polyethylene (LDPE) and other similar olefin type polymers as well as copolymers of ethylene/butene and ethylene/octene and the like and mixtures thereof. The presence of a crystalline thermoplasticity promoter provides superior adhesion especially seam shear strength (See Abstract; Column 1, lines 8-20; and Column 5, lines 37-46).

Accordingly, it would have been obvious to one having ordinary skill in the art to add HDPE to the roofing membrane taught by Venkataswamy et al. given that Davis et al. specifically teach that the presence of a crystalline thermoplasticity promoter such as HDPE provides superior adhesion especially seam shear strength.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 2, 5, and 6 have been considered but are moot in view of the new ground(s) of rejection.

The Declarations under 37 CFR 1.132, submitted by inventor Yang, and filed on February 2, 2009, contain notebook pages to establish both a conception and an actual

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reduction to practice of the claimed invention in this country before the effective date of the Glogovsky reference. However, the Declaration was ineffective in overcoming the rejection based on Glogovsky. The rejection based on Glogovsky was withdrawn in light of the amendments made to independent claim 1.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHEEBA AHMED whose telephone number is (571)272-1504. The examiner can normally be reached on Monday-Friday from 8am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sheeba Ahmed/
Primary Examiner, Art Unit 1794